Index

Breast cancer in women of reproductive age, 753–754.
See also Fertility preservation for women

Chemotherapy and radiation on female reproduction, toxicity of, 727–728
age effect and fertility potential, 732
chemotherapy-induced ovarian damage, 728–729
cortical fibrosis, 729
follicular apoptosis, 729
follicular "burn-out" hypothesis, 730
clinical consequences of, 730–731
drug effect and fertility potential, 732
protocol effect and fertility potential, 732–735
radiation-induced ovarian damage, 735
radiation-induced uterine damage, 735–736
reproductive outcome, 736–737
Chemotherapy-induced gonadotoxicity, 740–741
GnRHa: animal experiments, 741–742
GnRH agonist
a meta-analysis, 746
nonrandomized human studies, 742, 744
randomized, controlled, human studies, 744–746
GnRH antagonist, 746–748
tamoxifen (preclinical studies), 748–750
Chemotherapy-induced ovarian damage, 728–729
cortical fibrosis, 729
follicular apoptosis, 729
follicular "burn-out" hypothesis, 730
Cryopreservation and transplantation of ovarian tissue
autotransplantation of cryopreserved human ovarian tissue
heterotopic autotransplantation of cryopreserved human ovarian tissue, 793–794
orthotopic autotransplantation of cryopreserved human ovarian tissue, 791–793
reimplantation of isolated primordial follicles, 794
fertility preservation in cancer patients: different cryopreservation options, 789
ovarian tissue cryopreservation, 790
revascularization, issues in, 790–791
gonadotoxicity of chemotherapy, 787–788
gonadotoxicity of radiotherapy, 788
indications for ovarian tissue cryopreservation, 788–789
Cryopreservation of mature and immature oocytes, 763–764
clinical outcome, 772–773
cryobiology of slow cooling, 764–766
cryobiology of vitrification, 766
cryopreservation of the immature oocytes, 771–772
freezing of mature oocytes, 767–768
oocyte selection before freezing and after thawing, 766–767
slow cooling, 768–770
vitrification, 770–771

Doppler echocardiography for managing fetal cardiac arrhythmia, 899
atrial flutter, 911
AV block, 907–909
with structurally normal conduction system, 909
bradycardia, 905–907
fetal tachycardia, 910
general principles of diagnosis and management of fetal arrhythmia, 899–904
irregular rhythm, 904–905
nonsinus tachycardia, 910–911
sinus tachycardia, 910
treatment and outcome of SSA/SSB-mediated AV block, 910
VT, 911–913
Doppler in fetal heart failure, 915–916
cardiac screening versus fetal echocardiography, 916–917
color Doppler in the fetal echocardiographic examination, 917–919
fetal CHF
cardiovascular profile score, 924–926
causes of, 923
Doppler markers in, 924
treatment for, 926–927
fetal circulation, 916
future directions, 927
hydrops, 919–923
safety issues, 919
Doppler ultrasound, 828–830
Doppler ultrasound technology, 831–832
Doppler perfusion imaging, 839
fetal speckle tracking ecocardiography, 837
fetal tissue Doppler ecocardiography, 836–837
flow quantification, 838
multigated Doppler flowmetry, 838–839
real-time 3-dimensional Doppler flowmetry, 839
triplex Doppler flowmetry, 838
functional echocardiography, 833–834
functional tissue imaging, 832
limitations of tissue Doppler ecocardiography, 835–836
myocardial strain and strain rate, 835
physical deformation, 832
sonoelastography, 837–838
speckle ecocardiography, 836
limitations of, 836

Index

Breast cancer in women of reproductive age, 753–754.
See also Fertility preservation for women

Chemotherapy and radiation on female reproduction, toxicity of, 727–728
age effect and fertility potential, 732
chemotherapy-induced ovarian damage, 728–729
cortical fibrosis, 729
follicular apoptosis, 729
follicular "burn-out" hypothesis, 730
clinical consequences of, 730–731
drug effect and fertility potential, 732
protocol effect and fertility potential, 732–735
radiation-induced ovarian damage, 735
radiation-induced uterine damage, 735–736
reproductive outcome, 736–737
Chemotherapy-induced gonadotoxicity, 740–741
GnRHa: animal experiments, 741–742
GnRH agonist
a meta-analysis, 746
nonrandomized human studies, 742, 744
randomized, controlled, human studies, 744–746
GnRH antagonist, 746–748
tamoxifen (preclinical studies), 748–750
Chemotherapy-induced ovarian damage, 728–729
cortical fibrosis, 729
follicular apoptosis, 729
follicular "burn-out" hypothesis, 730
Cryopreservation and transplantation of ovarian tissue
autotransplantation of cryopreserved human ovarian tissue
heterotopic autotransplantation of cryopreserved human ovarian tissue, 793–794
orthotopic autotransplantation of cryopreserved human ovarian tissue, 791–793
reimplantation of isolated primordial follicles, 794
fertility preservation in cancer patients: different cryopreservation options, 789
ovarian tissue cryopreservation, 790
revascularization, issues in, 790–791
gonadotoxicity of chemotherapy, 787–788
gonadotoxicity of radiotherapy, 788
indications for ovarian tissue cryopreservation, 788–789
Cryopreservation of mature and immature oocytes, 763–764
clinical outcome, 772–773
cryobiology of slow cooling, 764–766
cryobiology of vitrification, 766
cryopreservation of the immature oocytes, 771–772
freezing of mature oocytes, 767–768
oocyte selection before freezing and after thawing, 766–767
slow cooling, 768–770
vitrification, 770–771

Doppler echocardiography for managing fetal cardiac arrhythmia, 899
atrial flutter, 911
AV block, 907–909
with structurally normal conduction system, 909
bradycardia, 905–907
fetal tachycardia, 910
general principles of diagnosis and management of fetal arrhythmia, 899–904
irregular rhythm, 904–905
nonsinus tachycardia, 910–911
sinus tachycardia, 910
treatment and outcome of SSA/SSB-mediated AV block, 910
VT, 911–913
Doppler in fetal heart failure, 915–916
cardiac screening versus fetal echocardiography, 916–917
color Doppler in the fetal echocardiographic examination, 917–919
fetal CHF
cardiovascular profile score, 924–926
causes of, 923
Doppler markers in, 924
treatment for, 926–927
fetal circulation, 916
future directions, 927
hydrops, 919–923
safety issues, 919
Doppler ultrasound, 828–830
Doppler ultrasound technology, 831–832
Doppler perfusion imaging, 839
fetal speckle tracking ecocardiography, 837
fetal tissue Doppler ecocardiography, 836–837
flow quantification, 838
multigated Doppler flowmetry, 838–839
real-time 3-dimensional Doppler flowmetry, 839
triplex Doppler flowmetry, 838
functional echocardiography, 833–834
functional tissue imaging, 832
limitations of tissue Doppler ecocardiography, 835–836
myocardial strain and strain rate, 835
physical deformation, 832
sonoelastography, 837–838
speckle ecocardiography, 836
limitations of, 836

strain and strain rate, 832–833
strain rate and velocity gradient, 833
tissue Doppler ecocardiography, 834–835
tissue Doppler imaging (TDI), 834
two and 3-dimensional strain, 833
Ductus venosus Doppler for fetal surveillance in high-risk pregnancies, 858–859
abnormal ductus venosus flow velocity waveforms, 860–862
complicated monochorionic twin gestation, 863–865
examination of the ductus venosus flow velocity profile, 859–860
fetal growth restriction (FGR), 862
early vascular responses, 862
integration of DV Doppler into FGR surveillance, 863
late vascular responses, 862–863
fetal hydrops, 865
fetal supraventricular tachycardia (SVT), 865–866

Fertility preservation for cancer
ethical considerations, 717–718
health of children born
from cryopreserved embryos, 721
frozen/retransplanted human ovarian tissue, 721–722
from oocyte cryopreservation, 720–721
implications for art clinics, 724
informed consent
for adults, 718–719
for children, 719–720
stem cell research and the manufacturing of gametes, 722–724
Fertility preservation in men, 815–816
acquisition and cryopreservation of sperm, 821
collection and storage of ejaculated sperm, 821–822
collection of sperm from patients with ejaculatory dysfunction, 823–824
collection of sperm in azoospermic patients, 824–825
clinical threats to male fertility
cancer, 816–817
chemotherapy, 817–818
death, 820–821
Klinefelter syndrome (KS), 820
nonmalignant diseases treated with immunosuppression, 819–820
occupational risk of mortality, 821
radiation therapy (RT), 817
surgery, 818–819
testicular injury, 821
fertility preservation in prepubertal boys, future, 826
Fertility preservation options for women with breast cancer
aromatase inhibitors, 758–759
breast cancer susceptibility gene carriers, 755–756
combined stimulation protocols with letrozole and gonadotropins, 759–760
counseling the patient, 754
fertility-preservation options for breast cancer patients, 757
impact of breast cancer treatment on fertility, 754–755
potential risk of a subsequent pregnancy in breast cancer survivors, 756–757
stimulation protocols for oocyte or embryo cryopreservation in women with breast cancer, 757–758
tamoxifen, 758
Fetal Doppler, 842, 845–846
acoustic output, 847–848
bioeffects and safety, 843
first trimester, 848
output display standard (ODS), 843–845
safety, 848–849
ultrasound in early gestation, 848

Gonadotoxicity
of chemotherapy, 787–788
of radiotherapy, 788
Gynecologic malignancies, 804
cervical cancer, 805
endometrial cancer, 807–808
hormonal therapy, 808
ovarian preservation, 809
progesterone IUD, 808
resectoscopic technique, 809
gestational trophoblastic disease (GTD), 812
low malignant potential (borderline) tumor, 810–811
malignant germ cell ovarian tumors, 811
ovarian cancer
invasive epithelial carcinoma, 809
sex cord-stromal tumors, 811–812
stage IA1
cervical conization, 805
stage IA2-IB1
ovarian transposition, 807
radical trachelectomy, 805–807

High-risk pregnancies, ductus venosus Doppler for fetal surveillance in, 858–859
abnormal ductus venosus flow velocity waveforms, 860–862
complicated monochorionic twin gestation, 863–865
examination of the ductus venosus flow velocity profile, 859–860
fetal growth restriction (FGR), 862
early vascular responses, 862
integration of DV Doppler into FGR surveillance, 863
late vascular responses, 862–863
fetal hydrops, 865
fetal supraventricular tachycardia (SVT), 865–866

In vitro maturation of oocytes as a strategy for fertility preservation, 775–776
IVM for fertility preservation for women with medical conditions, 780
advantages of IVM, 781–782

collection of immature oocytes from ovarian tissue specimens for cryopreservation, 782
IVM—oocyte vitrification, 782–783
problems with ovarian stimulation in cancer patients, 780–781
IVM for social fertility preservation, 783–784
IVM of human oocytes, 776–777
embryology laboratory procedures, 777–778
overview of an IVM cycle for fertility preservation, 777
IVM treatment outcome
congenital abnormalities, physical, and neuromotor development, 779
obstetric outcome, 778–779
pregnancy loss, 778
pregnancy rates, 778

Middle cerebral artery (MCA)
patient management, 855–856
technique, 851–855

Ovarian tissue transplantation (OTT), 797
prevention of posttransplantation ischemic ovarian damage
growth factors-induced neoangiogenesis, 798
hormonal treatment, 798–799
mechanically induced neoangiogenesis, 798
use of anitoxidants, 798
whole ovary transplantation, 799–801

Tamoxifen, 758
preclinical studies, 748–750
Tissue Doppler imaging (TDI), 834

Umbilical artery Doppler fetal surveillance in high-risk pregnancies, 869–870
background, 870
clinical effectiveness of umbilical artery Doppler
high-risk pregnancies, 872–874
low-risk pregnancies, 874
diagnostic efficacy, 870–871
general perinatal outcome, 871
hypoxia and acidosis, 871
long-term neurologic outcome, 871–872
management of delivery, 877
management of elevated, 876–877
management of normal, 875–876
other fetal surveillance tests, 875
outcome related to absent or reversed end diastolic flow, 871
umbilical artery Doppler
benefits of, 874
clinical significance, 875
Uterine artery Doppler and prediction of preeclampsia, 888–889
first trimester uterine artery Doppler, 889–891
plus biomarkers, 891–892
second trimester uterine artery Doppler, 892–893
plus biomarkers, 894–895
sequential first and second trimester uterine artery Doppler, 893–894
transabdominal technique, 889
treatment, 895–896
Uterine artery Doppler in first-trimester pregnancy screening, 879
first-trimester uterine artery Doppler and early-onset preeclampsia, 880–881
first-trimester uterine artery Doppler and late-onset preeclampsia, 881–882
maternal serum biochemical markers and uterine artery Doppler, 882–883
normal development of placental vasculature, 879–880
uterine artery Doppler intrauterine growth restriction (IUGR) during the first trimester, 883–885